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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,244	04/22/2005	Kenji Suzuki	270625US0PCT	9148
22850 7590 11/27/2007 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER TESKIN, FRED M	
			ART UNIT 1796	PAPER NUMBER
			NOTIFICATION DATE 11/27/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/532,244	<b>Applicant(s)</b> SUZUKI ET AL.	
	<b>Examiner</b> Fred M. Teskin	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Amendments presented in the reply of September 18, 2007 are acknowledged.

Claims 1 and 3-5 remain pending and under examination.

Applicant's arguments, see pages 4-5, filed September 18, 2007, with respect to Kegley and Morren have been fully considered and are persuasive. The rejection of claims 1 and 3-5 over these references has been withdrawn.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5250389 ("Nakamura") in view of any of Canterino, EP '139 and Weir.

Applicants' claims 1, 3 and 4 are drawn to a cured material, obtained by irradiating a curable resin composition with an active energy ray so that a moiety of a polymer block A contained in the curable resin composition is crosslinked, the curable composition comprising an addition polymerization-based block copolymer (I), an ethylenic unsaturated compound (II), and a photopolymerization initiator (III), wherein:

the addition polymerization-based addition block copolymer (I) is selected from block copolymers comprising at least one polymer block A and at least one polymer block B, and the hydrogenated products thereof; the polymer block (A) comprises at

least 10 % by mass of an alkylstyrene-derived structural unit (a) in which at least one alkyl group having 1 to 8 carbon atoms is bound to a benzene ring; and the polymer block (B) comprises a conjugated diene compound unit.

Applicants' claim 5 is drawn to a flexographic plate material, comprising the cured material according to claim 1 as a constituent.

Nakamura teaches a flexographic printing plate, comprising a photocured elastomer composition which comprises a thermoplastic block copolymer (I) that contains end blocks of polystyrene or poly( $\alpha$ -methylstyrene) and a mid-block of polybutadiene; see Examples 1-9, which further characterize the block copolymer as having 25 or 30 % styrene or  $\alpha$ -methystyrene content. The instantly claimed features of a crosslinked polymer block A that comprises at least 10 % by mass of an alkylstyrene-derived structural unit such poly(p-methylstyrene) is not disclosed in a single embodiment.

Nevertheless, Nakamura teaches, as a requirement of the thermoplastic block copolymer (1) used in its invention, that a monovinyl substituted aromatic hydrocarbon content (A) be 10 to 35 % by weight (preferably 15 to 30 wt %; see col. 6, ll. 34-39). Nakamura further mentions, as representative examples of (A), styrene,  $\alpha$ -methylstyrene, p-methylstyrene and o-methylstyrene, which may be used individually or in combination (*Id.*, ll. 61+). Therefore, at the time of applicants' invention, it would have been obvious to one of ordinary skill in the art to modify Nakamura by forming at least 10 wt % of the block (A) of its thermoplastic block copolymer (1) from an alkylstyrene such as p- and/or o-methystyrene in place of styrene or  $\alpha$ -methystyrene. Given their

teaching as alternative monovinyl substituted aromatic hydrocarbons and their close structural and chemical similarity, there would have been a reasonable expectation of a block copolymer derived from such alkylstyrene(s) performing equivalently in the photocurable elastomer composition of Nakamura.

Moreover, at least in the case of poly(p-methylstyrene), the secondary references establish that, at the time of invention, the level of ordinary skill in the art was such that the ordinary practitioner would have been expected to know that the stability of a cured material can be enhanced by improving the crosslinking rate of the material and that poly(p-methylstyrene) undergoes irradiative crosslinking easier than polystyrene. Indeed, the academic paper authored by Weir confirms the ease of crosslinking poly(p-methylstyrene) under irradiation vis-a-vis polystyrene, owing to  $\alpha$  -C-H bond scission in the p-methyl group (see page 408, final paragraph). EP '139, directed to a blend of poly(p-methylstyrene) with olefin or styrene butadiene rubber which can be crosslinked by radiation (page 1, first paragraph), similarly discloses that contrary to poly(p-methylstyrene), polystyrene does not crosslink under irradiation (see page 4, Table I). Further, Canterino discloses a chemically crosslinked poly(p-methylstyrene) and a polymerizable composition of p-methylstyrene blended with other methylstyrene isomers (col. 1, ll. 14-5 and col. 1, line 56 to col. 2, line 5). Like EP '139, Canterino states that polystyrene polymers do not crosslink by radiation or chemical initiation, contrary to the poly-methylstyrenes (see col. 5, lines 2-10).

Accordingly, one of ordinary skill in the art would have reasonably expected that by replacing fully or partly (i.e., at least 10 wt %) the styrene structural unit of the block

copolymer (1) of Nakamura by a p-methylstyrene unit, a polymer block capable of being crosslinked by irradiation would obtain.

Applicants' arguments filed September 18, 2007, with respect to Nakamura, have been fully considered but they are not persuasive.

Re Nakamura's Example 7, it is asserted that crosslinking does not take place in poly( $\alpha$ -methyl styrene) because there is no methyl group on the benzene ring. Further, the Examples and Comparative Examples of the present specification are said to demonstrate that cured materials, such as recited in claim 1, provide superior performance relative to known cured materials, such as disclosed in Nakamura.

To respond: the assertion as to no crosslinking occurring in poly( $\alpha$ -methylstyrene) lacks objective support in the record and therefore carries little patentable weight. In particular, applicants have offered no technically-supported explanation as to why the  $\alpha$ -methyl group would be incapable of generating free radicals in a manner analogous to that of an alkyl group substituted on the benzene ring of styrene. Argument of counsel cannot take the place of evidence in the record, *In re Pearson*, 181 USPQ 641, 646 (CCPA 1974).

However, even if the assertion is accepted at face value, the fact remains that Nakamura teaches p-methylstyrene as an alternative to styrene and  $\alpha$ -methylstyrene for forming the monovinyl substituted hydrocarbon block of its block copolymer (1). Further, in light of the teachings of the secondary references as discussed above, one of ordinary skill would have reasonably expected a poly(p-methylstyrene) structural unit to

be more susceptible to crosslinking by irradiation than polystyrene. Therefore, it is not surprising that the cured resin materials used in applicants' Examples 1-6, wherein a poly(p-methylstyrene) hard block did undergo crosslinking, displayed some improvement in properties such as tensile strength at break, compared to the cured materials of Comparative Examples 1-6, wherein a styrene-containing hard block was not crosslinked. Whether the improved properties/performance actually obtained would have been regarded by those of ordinary skill as unexpected has not, however, been established. Indeed there is no statement by the applicants in the specification or in an evidentiary submission, such as an affidavit or declaration under Rule 132, to the effect that the improved properties/performance were much greater than would have been predicted, *In re Soni*, 34 USPQ2d 1684 (Fed. Cir. 1995), or objective evidence from a respected source supporting a conclusion that the test results were unexpected in light of the state of technical knowledge at the time regarding the inventive subject matter, *In re Geisler*, 43 USPQ2d 1362 (Fed. Cir. 1997). Because of the failure to establish that any differences in results actually obtained are in fact unexpected and unobvious, examiner finds the evidence of unobviousness of record fails to outweigh the evidence of obviousness of record.

No claims are in condition for allowance at this time.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.



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FRED TESKIN  
PRIMARY EXAMINER  
1796

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